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Residual reactor antineutrinos observation with the Double Chooz detectors

The Double Chooz (DC) experiment is a reactor antineutrino experiment designed to measure the θ_{13} mixing angle. The experiment is located at Chooz-B nuclear power plant and consists of two IBD detectors respectively located $\sim 400\text{m}$ and $\sim 1050\text{m}$ to the two 4.25 GW pressurized water reactors constituting the plant. In 2018, DC reported its latest analysis of θ_{13} with both detectors taking data simultaneously. This analysis benefit of an improved IBD selection technique that increase by ~ 2.5 the statistics compared to the previous one. Thanks to it's unique site configuration, DC also benefit in 2017 of four periods with both reactors off.

In this poster, the latest analysis of ~ 27 days of reactor off data using this new IBD selection method will be presented as well as a prediction of the residual antineutrinos expected from the nuclear fuel.

Mini-abstract

Observation of residual antineutrinos from nuclear spent fuel in the Double Chooz experiment.

Experiment/Collaboration

Double Chooz experiment

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